Prevalence of metabolic syndrome in adolescents: Reason to worry

Sir,

We read with interest the article 'Prevalence of metabolic syndrome in adolescents aged 10-18 years in Jammu, J and K' by Singh *et al.*,[1] and would like to make some important comments.

The metabolic syndrome (MS) in adolescents is a largely unrecognized health problem and it's exact prevalence in developing countries particularly in India is unknown until recently when few studies were conducted in this field including that by Singh *et al.*[1] Kapil *et al.,*[2] found that the prevalence of MS in children (6-18 years) from high income group in Delhi was 6.5% (males 6.9% and females 5.9%), which was higher than that reported by Singh *et al.*[1] Recently, Tandon *et al.,*[3] studied the prevalence of MS in urban Indian adolescents (695 out of 15,101 adolescents, 10-18 years) and found that the calculated prevalence of MS in total population was 4.3% and 3.0% using Adult Treatment Panel (ATP) and international diabetes federation criteria, respectively, which was slightly higher than that reported by Singh *et al.*[1] MS was significantly higher in girls than boys and the most common component of MS was central obesity followed by hypertriglyceridemia, low high density lipoprotein (HDL)-cholesterol, hypertension and dysglycemia; which were in contrast to that reported by Singh *et al.,*[1] where males had higher prevalence; and low HDL-cholesterol was most common and high blood pressure was least common constituent of MS. Moraes *et al.,*[4] conducted a systematic review by including 8 studies in adolescents (10-19 years) undertaken in low to medium-income countries and found that the prevalence of MS ranged from 4.2-15.4 in studies using the NCEP-ATP III criteria; and 4.5-38.7 in studies using the WHO criteria.

WHO criteria for MS include Insulin resistance (defined as 1 of the following: Type 2 diabetes; impaired fasting glucose; impaired glucose tolerance; or for those with normal fasting glucose values (<110 mg/dL), a glucose uptake below the lowest quartile for background population under hyperinsulinemic, euglycemic conditions) AND two of the following: Antihypertensive medication and/or high blood pressure (≥140 mm Hg systolic or ≥90 mm Hg diastolic); plasma triglycerides ≥150 mg/dL; HDL-cholesterol <35 mg/dL in men or <39 mg/dL in women; BMI >30 kg/m^2 and/or waist: Hip ratio >0.9 in men, >0.85 in women; and urinary albumin excretion rate ≥20 μg/min or albumin: creatinine ratio ≥30 mg/g.[5] The WHO criteria is more objective than ATP III criteria, but it requires special testing of glucose status beyond routine clinical assessment,[5] which makes it less preferred tool for epidemiological studies.

The difference in prevalence of MS and varied prevalence of different components of MS in different studies may be due to differences in populations studied and different criteria used. MS in adolescents is an under recognized and is a forerunner of diabetes mellitus and cardiovascular diseases in adulthood. Therefore, its urgent identification and interventions with lifestyle changes are needed to prevent disease progression into adulthood.

Suresh Kumar Angurana, Renu Suthar Angurana[1]

Departments of Pediatrics, Chaitanya Hospital, Chandigarh, [1]Advanced Pediatric Centre, Postgraduate Institute of Medical Education and Research, Chandigarh, India

Corresponding Author: Dr. Suresh Kumar Angurana, Department of Pediatrics, Chaitanya Hospital, Sector 44, Chandigarh, India. E-mail: sureshangurana@gmail.com

References

1. Singh N, Parihar RK, Saini G, Mohan SK, Sharma N, Razaq M, *et al*. Prevalence of metabolic syndrome in adolescents aged 10-18 years in Jammu, J and K. Indian J Endocrinol Metab 2013;17:133-7.
2. Kapil U, Kaur S. Prevalence of pediatrics metabolic syndrome (PMS) amongst children in the age group of 6-18 years belonging to high income group residing in national capital territory (NCT) of Delhi. Indian J Pediatr 2010;77:1041.
3. Tandon N, Garg MK, Singh Y, Marwaha RK. Prevalence of metabolic syndrome among urban Indian adolescents and its relation with insulin resistance (HOMA-IR). J Pediatr Endocrinol Metab 2013;8:1-8.
4. Moraes AC, Fulaz CS, Netto-Oliveira ER, Reichert FF. Prevalence of metabolic syndrome in adolescents: A systematic review. Cad Saude Publica 2009;25:1195-202.
5. Grundy SM, Brewer HB Jr, Cleeman JI, Smith SC Jr. Lenfant C. Definition of metabolic syndrome: Report of the National Heart, Lung, and Blood Institute/American Heart Association conference on scientific issues related to definition. Circulation 2004;109:433-8.

Access this article online	
Quick Response Code:	Website: www.ijem.in
	DOI: 10.4103/2230-8210.122656